

WHAT IS CLAIMED IS

1. A packet communications method for carrying out packet  
5 communications between a base station and a mobile station  
located in an area controlled by the base station, the  
method comprising:
  - detecting a channel quality between the base station  
and the mobile station;
  - 10 detecting the amount of data buffered in a transmission  
buffer of a sender; and
  - determining a modulation scheme to be used in the  
packet communications based on the channel quality and the  
buffered data amount.
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2. The packet communications method according to claim 1,  
wherein the modulation scheme is determined such that a  
prescribed communication condition is satisfied, and that  
20 padding, which is added to the data buffered in the  
transmission buffer of the sender when the buffered data  
amount is less than a transmission unit size, becomes the  
minimum, based on the channel quality and the buffered data  
amount.
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3. A base station that carries out packet communications  
with a mobile station located in an area controlled by the  
base station, the base station comprising:
  - 30 a channel quality detecting unit that detects a channel  
quality between the base station and the mobile station;
  - a buffered data monitoring unit that monitors the  
amount of data buffered in a transmission buffer of the base

station; and

5 a modulation scheme determination unit that determines a modulation scheme for the packet communications based on the channel quality and the buffered data amount in the transmission buffer.

4. The base station according to claim 3, wherein the modulation scheme determination unit determines the  
10 modulation scheme that satisfies a prescribed communication condition, and that makes padding, which is added to the data buffered in the transmission buffer when the buffered data amount is less than a transmission unit size, become the minimum, based on the channel quality and the buffered  
15 data amount.

5. A mobile station that carries out packet communications with a base station, comprising:

20 a channel quality detecting unit that detects a channel quality between the base station and the mobile station;

a buffered data monitoring unit that monitors the amount of data buffered in a transmission buffer of the mobile station; and

25 a modulation scheme determination unit that determines a modulation scheme for the packet communications based on the channel quality and the buffered data amount in the transmission buffer.

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6. The mobile station according to claim 5, wherein the modulation scheme determination unit determines the modulation scheme that satisfies a prescribed communication

condition, and that makes padding, which is added to the data buffered in the transmission buffer when the buffered data amount is less than a transmission unit size, become the minimum, based on the channel quality and the buffered data amount.

7. A packet communication program used in packet communications between a base station and a mobile station located in an area controlled by the base station and installed in one of the base station and the mobile station that becomes a sender, the program comprising procedures of:

- causing the sender to detect a channel quality between the base station and the mobile station;
- causing the sender to detect the amount of data buffered in a transmission buffer of the sender; and
- causing the sender to determine a modulation scheme for the packet communications based on the channel quality and the data amount in the transmission buffer of the sender.